

NPL-2611 Secondary Standard Therapy Dosimetry Chamber

The 2611A chamber consists of a thin walled high purity graphite thimble, amber insulators and a hollow pure aluminium electrode supported by a thin walled aluminium stem. The stem terminates in a robust cable entry, by which the chamber is mounted to a 10 metre length of low noise triaxial cable to a BNC triaxial plug and is provided with a Triax TNC converter.



Key Features:

- Air Vented Chamber – so air density corrections are to be applied
- The chamber is manufactured in the UK by the 'NPL' (National Physical Laboratory)
- Maintenance and Calibration are carried out by NPL
- Secondary Standard calibrations for Electrons and Photons are carried out normally twice per annum and are available directly from NPL



Performance

- Energy response — uniform +/- 1% from 1.0mm AL 20mm AL HVL (0.030mm Cu to 4.00mm Cu HVL)
- Sensitivity – 11nC/Gy nominal
- Better than +/- 0.35 over 3 years
- Polarising potential— 200V / Max +/-400 V DC
- Collection efficiency (HV@-200V) - continuous radiation better than 99.9% for dose/pulse values less than 43.5 microGy
- Leakage – better than +/-2X10^{E-14A}

Specification

Active Dimensions	Sensitive Volume—325mm ³ Length of volukme—9.22mm Thimble wall thickness— 0.5mm Diameter—7.35 mm
Exterior Dimensions	Length — 185mm Diameter — 12.5 mm
Materials	Thimble—high density (1.80b/cm ³) high purity extruded graphite Collecting electrode - aluminium 99.99% pure Main insulator — amber stem insulators P.C.T.F.E. HV insulator – Delrin The chamber stem is guarded to a point 15mm from the measuring Volume
Reference Point	The effective measurement point for positioning the chamber should be taken to be the axis of the chamber 5mm from the tip of the graphite thimble
Venting	To ensure that the chamber is equilibrated with the atmosphere the measuring volume is vented giving pressure equilibration times for just a few seconds
Build up Cap	Delrin, with external diameter of 17.0 mm and wall thickness of 600mg/cm ²
Cable	Suhner GO 233OHT connections Centre core—signal at HV Inner screen—guard at HV Outer screen—earth potential Length 10m

Accessories:

- NPLSL—Water Proof Sleeve (one delivered with each new chamber)
- NPLCDC – Sleeve to accommodate NPL-2611 into IBA CDC Check Source—see left picture
- NE2566A — Perspex Phantom for Intercomparison between Farmer Type and 0.33cc Secondary Standard Chambers